

IN THE CLAIMS:

1. (Currently Amended) An electron-emitting device comprising a pair of electric conductors disposed on a substrate and a pair of films composed chiefly of carbon and connected to said pair of electric conductors and disposed with a gap interposed therebetween, wherein said films contain therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium within the range of 1 mol% to 5 mol% in terms of the percentage to carbon.

2. (Currently Amended) An electron-emitting device comprising a pair of device electrodes disposed on a substrate, an electrically conductive film connected to said pair of device electrodes and having a fissure between the pair of device electrodes, and a carbon film composed chiefly of carbon and formed in said fissure and on an area including said fissure and having in said fissure a gap of a width narrower than said fissure, wherein said carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium within the range of 1 mol% to 5 mol% in terms of the percentage to carbon.

3. (Currently Amended) An electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of electric conductors disposed on the substrate and a pair of films composed chiefly of carbon and connected to

said pair of electric conductors and disposed with a gap interposed therebetween, wherein said films contain therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium within the range of 1 mol% to 5 mol% in terms of the percentage to ~~carbon~~: carbon.

4. (Currently Amended) An image forming apparatus comprising an electron source, and an image forming member for effecting image formation by electrons emitted from said electron source colliding against it, the electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of electric conductors disposed on the substrate and a pair of films composed chiefly of carbon and connected to said pair of electric conductors and disposed with a gap interposed therebetween, wherein said films contain therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium within the range of 1 mol% to 5 mol% in terms of the percentage to carbon.

5. (Currently Amended) An electron-emitting device comprising a pair of electric conductors disposed on a substrate and a pair of films composed chiefly of carbon and connected to said pair of electric conductors and disposed with a gap interposed therebetween, wherein said films contain therein one or more kinds of elements selected

from the group consisting of lithium, potassium, sodium, calcium, strontium and barium of 5 mol% or less in terms of the percentage of carbon.

6. (Currently Amended) An electron-emitting device comprising a pair of device electrodes disposed on a substrate, an electrically conductive film connected to said pair of device electrodes and having a fissure between the pair of device electrodes, and a carbon film composed chiefly of carbon and formed in said fissure and on an area including said fissure and having in said fissure a gap of a width narrower than said fissure, wherein said carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium of 5 mol% or less in terms of the percentage to carbon.

7. (Currently Amended) An electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of electric conductors disposed on the substrate and a pair of films composed chiefly of carbon and connected to said pair of electric conductors and disposed with a gap interposed therebetween, wherein said films contain therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium of 5 mol% or less in terms of the percentage of carbon.

8. (Currently Amended) An image forming apparatus comprising an electron source, and an image forming member for effecting image formation by electrons emitted from said electron source colliding against it, the electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of electric conductors disposed on the substrate and a pair of films composed chiefly of carbon and connected to said pair of electric conductors and disposed with a gap interposed therebetween, wherein said films contain therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium of 5 mol% or less in terms of the percentage of carbon.

9. (Previously presented) An electron-emitting device, comprising:
a carbon film composed chiefly of carbon; and
an electrode electrically connected to the carbon film,
wherein the carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium of 5 mol% or less in terms of the percentage to carbon.

10. (Previously presented) An electron-emitting device, comprising:
a carbon film composed chiefly of carbon; and
an electrode electrically connected to the carbon film,

wherein the carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium of within the range of 1 mol% to 5 mol% in terms of the percentage to carbon.

11. (Previously presented) An electron source, comprising:

a substrate;

a plurality of electron-emitting devices disposed on the substrate, each electron-emitting device comprising:

a carbon film composed chiefly of carbon, and

an electrode electrically connected to the carbon film,

wherein the carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium of 5 mol% or less in terms of the percentage to carbon; and

wirings connected to the plurality of electron-emitting devices.

12. (Previously presented) An electron source, comprising:

a substrate;

a plurality of electron-emitting devices disposed on the substrate, each electron-emitting device comprising:

a carbon film composed chiefly of carbon, and

an electrode electrically connected to the carbon film,

wherein the carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium of within the range of 1 mol% to 5 mol% in terms of the percentage to carbon; and

wirings connected to the plurality of electron-emitting devices.

13. (Previously presented) An image-forming apparatus, comprising:

an image forming member; and

an electron source, comprising:

a substrate;

a plurality of electron-emitting devices disposed on the substrate,

each electron-emitting device comprising:

a carbon film composed chiefly of carbon, and

an electrode electrically connected to the carbon film,

wherein the carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium of 5 mol% or less in terms of the percentage to carbon; and

wirings connected to the plurality of electron-emitting devices.

14. (Previously presented) An image-forming apparatus, comprising:

an image forming member; and

an electron source, comprising:

- a substrate;
- a plurality of electron-emitting devices disposed on the substrate,

each electron-emitting device comprising:

- a carbon film composed chiefly of carbon, and
- an electrode electrically connected to the carbon film,

wherein the carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium of within the range of 1 mol% to 5 mol% in terms of the percentage to carbon; and

wirings connected to the plurality of electron-emitting devices.

15. (Previously presented) An electron-emitting device, comprising:

- a carbon film composed chiefly of carbon; and
- an electrode electrically connected to the carbon film,

wherein one or more elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium are contained in the carbon film in a rate of 1 mol% or more with respect to carbon.

16. (Previously presented) An electron source, comprising:

- a substrate;

a plurality of electron-emitting devices disposed on the substrate, each electron-emitting device being an electron-emitting device comprising:

- a carbon film composed chiefly of carbon, and
- an electrode electrically connected to the carbon film,
- wherein one or more elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium are contained in the carbon film in a rate of 1 mol% or more with respect to carbon; and
- wirings connected to the electron-emitting devices.

17. (Previously presented) An image-forming apparatus, comprising:
an electron source comprising:

- a substrate,
- a plurality of electron-emitting devices disposed on the substrate,
- each electron-emitting device comprising:
 - a carbon film composed chiefly of carbon, and
 - an electrode electrically connected to the carbon film,
 - wherein one or more elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium, and barium are contained in the carbon film in a rate of 1 mol% or more with respect to carbon, and
 - wirings connected to the electron-emitting devices; and

a phosphor.

18. (Previously presented) An electron-emitting device, comprising:
a deposit composed chiefly of carbon including a graphite structure; and
an electrode electrically connected to said deposit,
wherein one or more elements selected from the group consisting of
potassium, sodium, calcium, strontium, and barium are contained in the deposit.

19. (Previously presented) An electron source, comprising:
a substrate;
a plurality of electron-emitting devices disposed on the substrate, each
electron-emitting device being an electron-emitting device comprising:
a deposit composed chiefly of carbon including a graphite structure, and
an electrode electrically connected to said deposit,
wherein one or more elements selected from the group consisting of
potassium, sodium, calcium, strontium, and barium are contained in the
deposit; and
wirings connected to the electron-emitting devices.

20. (Previously presented) An image-forming apparatus comprising:
an electron source comprising:

a substrate,
a plurality of electron-emitting devices disposed on the substrate, each
electron-emitting device comprising:
a deposit composed chiefly of carbon including a graphite
structure, and
an electrode electrically connected to said deposit,
wherein one or more elements selected from the group consisting
of potassium, sodium, calcium, strontium, and barium are
contained in the deposit, and
wirings connected to the electron-emitting devices; and
a phosphor.

21. (Currently Amended) An electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of device electrodes disposed on the substrate, an electrically conductive film connected to said pair of device electrodes and having a fissure between the pair of device electrodes, and a carbon film composed chiefly of carbon and formed in said fissure and on an area including said fissure and having in said fissure a gap of a width narrower than said fissure, wherein said carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium,

strontium and barium within the range of 1 mol% to 5 mol% in terms of the percentage to carbon.

22. (Currently Amended) An image-forming apparatus comprising an electron source and an image forming member for effecting image formation by electrons emitted from said electron source colliding against it, said electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of device electrodes disposed on the substrate, an electrically conductive film connected to said pair of device electrodes and having a fissure between the pair of device electrodes, and a carbon film composed chiefly of carbon and formed in said fissure and on an area including said fissure and having in said fissure a gap of a width narrower than said fissure, wherein said carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium within the range of 1 mol% to 5 mol% in terms of the percentage to carbon.

23. (Currently Amended) An electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of device electrodes disposed on the substrate, an electrically conductive film connected to said pair of device electrodes and having a fissure between the pair of device electrodes, and a carbon film composed chiefly of carbon

and formed in said fissure and on an area including said fissure and having in said fissure a gap of a width narrower than said fissure, wherein said carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium of 5 mol% or less in terms of percentage to carbon.

24. (Currently Amended) An image-forming apparatus comprising an electron source and an image forming member for effecting image formation by electrons emitted from said electron colliding against it, said electron source comprising a plurality of electron-emitting devices disposed on a substrate, and wirings connected to said electron-emitting devices, each electron-emitting device comprising a pair of device electrodes disposed on a substrate, an electrically conductive film connected to said pair of device electrodes and having a fissure between the pair of device electrodes, and a carbon film composed chiefly of carbon and formed in said fissure and on an area including said fissure and having in said fissure a gap of a width narrower than said fissure, wherein said carbon film contains therein one or more kinds of elements selected from the group consisting of lithium, potassium, sodium, calcium, strontium and barium of 5 mol% or less in terms of the percentage to carbon.